

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method for creating a signature of a sampled work in real-time, said method comprising:

receiving a sampled work;

segmenting said sampled work into a plurality of segments, said segments having predetermined segment and hop sizes;

~~creating a signature of said sampled work based upon said plurality of segments a plurality of signatures wherein each of plurality of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and~~

~~storing said sampled work signature said plurality of signatures as a representative signature of said work.~~

2. (Currently Amended) The method of claim 1, wherein said method further includes the act of providing a plurality of ~~reference representative~~ signatures of a plurality of known works wherein each of a plurality of segments in each of said plurality of a representative segment has ~~having~~ a segment size and a hop size.

3. (Currently Amended) The method of claim 2, wherein said method is characterized in that said hop size of ~~sampled work signature each of said plurality of signatures of said sampled work~~ is less than said hop size of ~~said plurality of segments of each of said reference plurality of representative signatures of said plurality of known works.~~

4. (Currently Amended) The method of claim 1, wherein said act of creating a signature said plurality of signatures of said sampled work compromises calculating segment feature vectors for each segment plurality of segments of said sampled work.

5. (Cancel) The method of claim 2, wherein said act of creating a signature includes calculating a plurality of MFCCs for each said segment.

6. (Cancel) The method of claim 1, wherein said act of creating a signature includes calculating a plurality of acoustical features from the group consisting of at least one of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients for each said segment.

7. (Currently Amended) The method of claim 1, wherein said sampled work representative signature of said sampled work comprises a said plurality of segments and an identification portion.

8. (Original) The method of claim 7, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

9. (Original) The method of claim 8, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

10. (Original) The method of claim 8, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

11. (Currently Amended) A method for identifying unknown audio work, said method comprising:

providing a plurality of reference signatures of a plurality of known works wherein each of said plurality of reference signatures comprises a plurality of signatures generated from a plurality of segments of a known work each having a segment size and a hop size;

receiving a sampled work;

segmenting said sampled work into a plurality of segments, each of said plurality of said segments having predetermined segment and hop sizes;

creating a signature of said sampled work based upon said plurality of segments a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients;

storing said sampled work signature said plurality of signatures as a representative signature of said work; and

comparing said sampled work representative signature of said sampled work to said plurality of reference signatures of said plurality of known works to determine whether there is a match.

12. (Currently Amended) The method of claim 11, wherein said method is characterized in that said hop size of said plurality of segments of said sampled work signature is less than said hop size of said reference signatures.

13. (Currently Amended) The method of claim 11, wherein said act of creating a said plurality of signature signatures of said sampled work comprises calculating segment feature vectors for each segment plurality of segments of said sampled work.

14. (Currently Amended) The method of claim 13, wherein said act of comparing said sampled work representative signature of said sampled work to said plurality of reference signatures comprises measuring the Euclidean distance between said feature vectors and comparing said Euclidean distance to a predetermined threshold.

15. (Cancel) The method of claim 13, wherein said act of creating a signature includes calculating a plurality of MFCCs for each said segment.

16. (Cancel) The method of claim 13, wherein said act of creating a signature includes calculating a plurality of acoustical features from the group consisting of at least one of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients for each said segment.

17. (Currently Amended) The method of claim 11, wherein said sampled work representative signature comprises a said plurality of segments signatures and an identification portion.

18. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

19. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

20. (Original) The method of claim 17, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

21. (Currently Amended) An apparatus for creating a signature of sampled work in real-time, said apparatus comprising:

means for receiving a sampled work;

means for segmenting said sampled work into a plurality of segments, said segments each of said plurality of segments having predetermined segment and hop sizes;

creating a signature of said sampled work based upon said plurality of segments a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and

storing said sampled work signature said plurality of signatures as a representative signature of said work.

22. (Currently Amended) The apparatus of claim 21, wherein said apparatus further includes means for a plurality of reference representative signatures of a plurality of known works wherein each of a plurality of segments in each of said plurality of a representative segments has having a segment size and a hop size.

23. (Currently Amended) The apparatus of claim 22, wherein said apparatus is characterized in that said hop size of ~~sampled work signature~~ each of said plurality of signatures of said sampled work is less than said hop size of said plurality of segments of each of said reference plurality of representative signatures of said plurality of known works.

24. (Currently Amended) The apparatus of claim 21, wherein said means for a ~~signature~~ said plurality of signatures of said sampled work compromises calculating segment feature vectors for each ~~segment~~ plurality of segments of said sampled work.

25. (Cancel) The apparatus of claim 21, wherein said means for creating a signature includes calculating a plurality of MFCCs for each said segment.

26. (Currently Amended) The apparatus of claim 21, wherein said ~~sampled work~~ representative signature comprises a plurality of ~~segments~~ signatures and an identification portion.

27. (Currently Amended) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

28. (Currently Amended) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

29. (Currently Amended) The apparatus of claim 26, wherein each of said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.

30. (Cancel) The apparatus of claim 21, wherein said means for creating a signature includes means for calculating a plurality of acoustical features from the group consisting of at least one of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients for each said segment.

31. (Cancel) A machine readable data transmission containing a data structure for a sampled work of having a plurality of segments, said segments having predetermined segment and hop sizes.

32. (Cancel) The machine readable data transmission of claim 31, wherein said data structure is characterized in that said hop size of said sampled work signature is less than said hop size of a corresponding reference signature.

33. (Cancel) A machine-readable data medium containing a data structure for a sampled work having a plurality of segments, said segments having predetermined segment and hop sizes.

34. (Cancel) The machine-readable data medium of claim 33, wherein said data structure is characterized in that said hop size of said sampled work signature is less than said hop size of a corresponding reference signature.

35. (Currently Amended) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for creating a signature of a sampled work in real-time, said method comprising:

receiving a sampled work;

segmenting said sampled work into a plurality of segments, each of said plurality of segments having predetermined segment and hop sizes;

~~creating a signature of said sampled work based upon said plurality of segments~~ a plurality of signatures wherein each of signatures is a signature of one of said plurality of segments and each of said plurality of signatures includes calculations of a plurality of acoustical features of said one of said plurality of segments selected from a group consisting of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients; and

~~storing said sampled work signature~~ said plurality of signatures as a representative signature of said work.

36. (Currently Amended) The method of claim 35, wherein said method further includes the act of providing a plurality of reference representative signatures of a plurality of known works wherein each of a plurality of segments in each of said plurality of a representative segments has having a segment size and a hop size.

37. (Currently Amended) The method of claim 36, wherein said method characterized in that said hop size of ~~sampled work signature~~ each of said plurality of signatures of said sampled work is less than said hop size of said plurality of segments of each of said reference plurality of representative signatures of said plurality of known works.

38. (Currently Amended) The method of claim 35, wherein said act of creating a signature said plurality of signatures of said sampled work compromises calculating segment feature vectors for each segment plurality of segments of said sampled work.

39. (Cancel) The method of claim 36, wherein said act of creating a signature includes calculating a plurality of MFCCs for each of said segment.

40. (Cancel) The method of claim 35, wherein said act of creating a signature includes calculating a plurality of acoustical features from the group consisting of at least one of loudness, pitch, brightness, bandwidth, spectrum and MFCC coefficients for each said segment.

41. (Currently Amended) The method of claim 35, wherein said sampled work signature comprises a said plurality of segments signatures and an identification portion.

42. (Original) The method of claim 41, wherein said plurality of segments of said sampled work signature comprise a segment size of approximately 0.5 to 3 seconds.

43. (Original) The method of claim 42, wherein said plurality of segments of said sampled work signature comprise a hop size of less than 50% of the segment size.

44. (Original) The method of claim 42, wherein said plurality of segments of said sampled work signature comprise a hop size of approximately 0.1 seconds.